

Zygaenoidea

Chris Grinter
Lepidoptera Course 2017



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CALIFORNIA
ACADEMY OF
SCIENCES

Zygaenoidea (Apoditrysia)

- 12 families with ca. 2,700 described species

Small to medium sized fuzzy moths (Limacodidae, Megalopygidae, Dalceridae)

Bizarre larvae (Limacodidae, Megalopygidae, Dalceridae)

Many Zygaenidae are diurnal
Epipyropidae are ectoparasites on Homoptera



Zygaenoidea

- Not clearly defined by autapomorphies.
- Retractable head of the larva and position of 2nd abdominal spiracle of the pupa (covered by the wings) seem to form reliable characters.



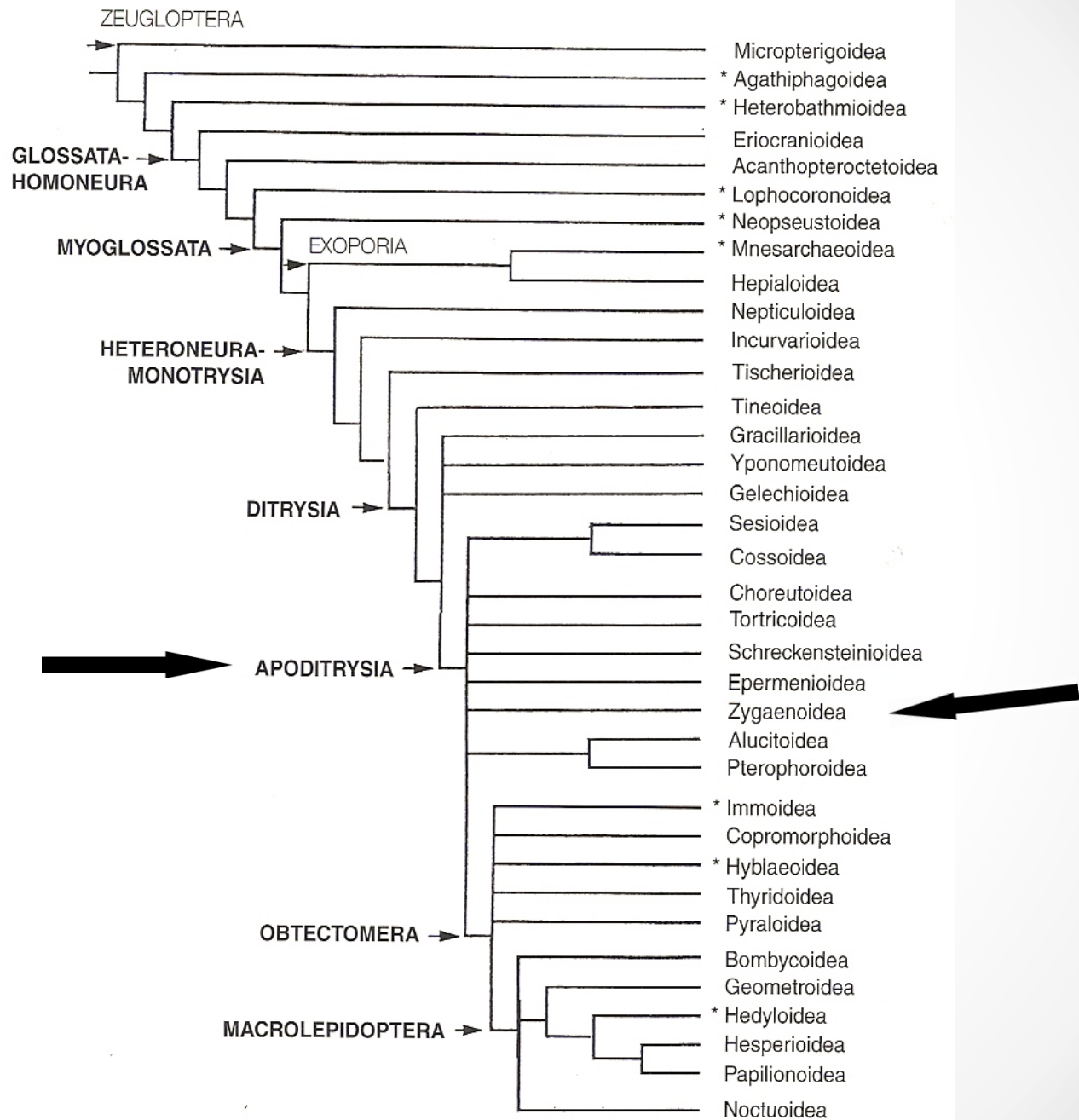
Zygaenoidea

- Cocoons often thick/papery and form trap-door like exits. Lids are created by the pupae and exit nearly entirely from the cocoon prior to eclosion.

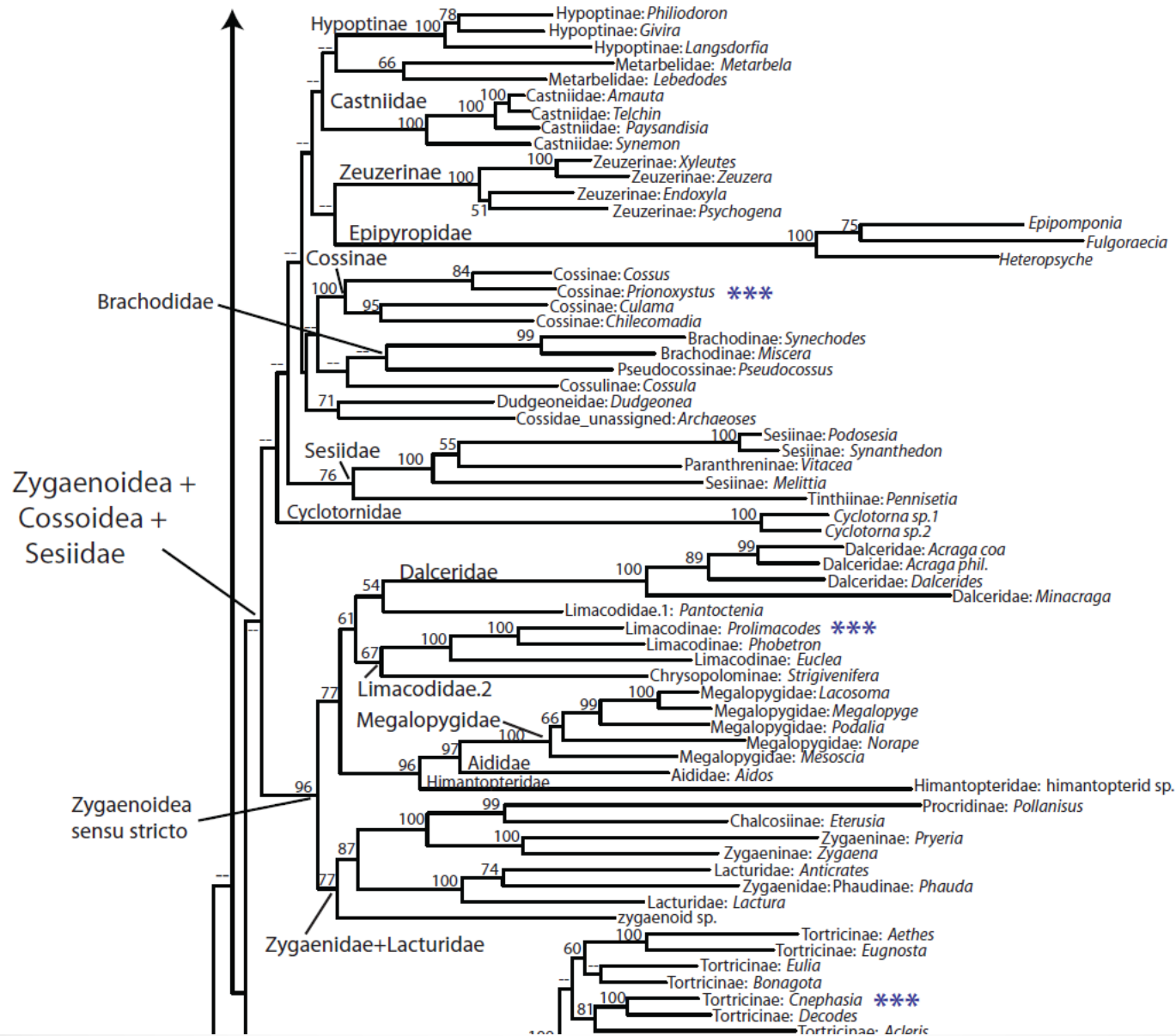
Megalopyge sp.



(except Dalceridae)



Regier, et. al. 2013



Zygaenidae

- About 1000 described species worldwide
 - 25 species in the US in 9 genera
- Diurnal, colorful, larvae and adults sequester alkaloids and emit Hydrogen Cyanide



Harrisina metallica

© Charles W. Melton
www.nearfamous.com



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- HCN released after breakdown of cyanogenic glucosides which are sequestered from plants and can also be synthesized by all life stages.
- Moths in the genus *Zygaena* sequester and produce linamarin and lotaustralin as precursors to cyanide.
 - Males present these glucosides as a nuptial gift to mated females.
 - Females might be using plumes of HCN as a pheromone to attract males.
 - Makes collecting into cyanide bottles impossible
- (Zagrobelny, 2007)

Zygaenidae Adults

- Ocelli usually present with well developed chaetosemata.



Zygaenidae Adults

- Antennae filiform, clavate, dentate or bipectinate
- Maxillary palpi very small 1-2 segmented
- Labial palpi short and ascending



- At least one pest species here, Grapeleaf Skeletonizer, *Harrisina americana*



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One invasive species in MA & VA: *Pryeria sinica* on *Euonymus* (Celastraceae).



Limacodidae

- About 1000 species worldwide
 - 50 species in 22 genera in North America
- Impressive larvae, many with urticating hairs





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Limacodidae

- Ocelli and chaetosemata absent.
- Maxillary palpi and proboscis usually reduced, sometimes vestigial or absent.
- Larvae often change significantly between early and late instars, especially species with “gelatin caterpillars”



Limacodidae

- Stout, fuzzy and often brightly colored moths
- Characteristic resting posture



Dalceridae

- 50 Neotropical species, one makes it north to Arizona, *Dalcerides ingenita*.
- Sister to the Limacodidae
- Bizarre and fascinating larvae!



© Andreas Kay

Dalceridae



Dalcerides ingenita locomotion: early instar



Megalopygidae

- 242 Neotropical, 10 species in 4 genera in the USA
- Maxillary and labial palpi reduced, ocelli absent, chaetosemata present.
- Dense urticating hairs readily cause erucism in humans



Megalopygidae



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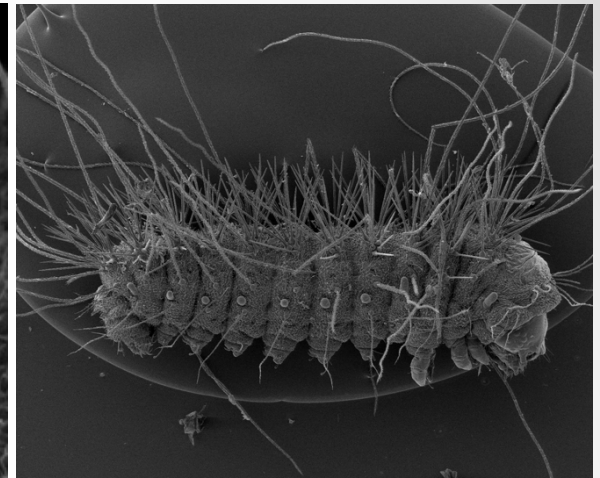
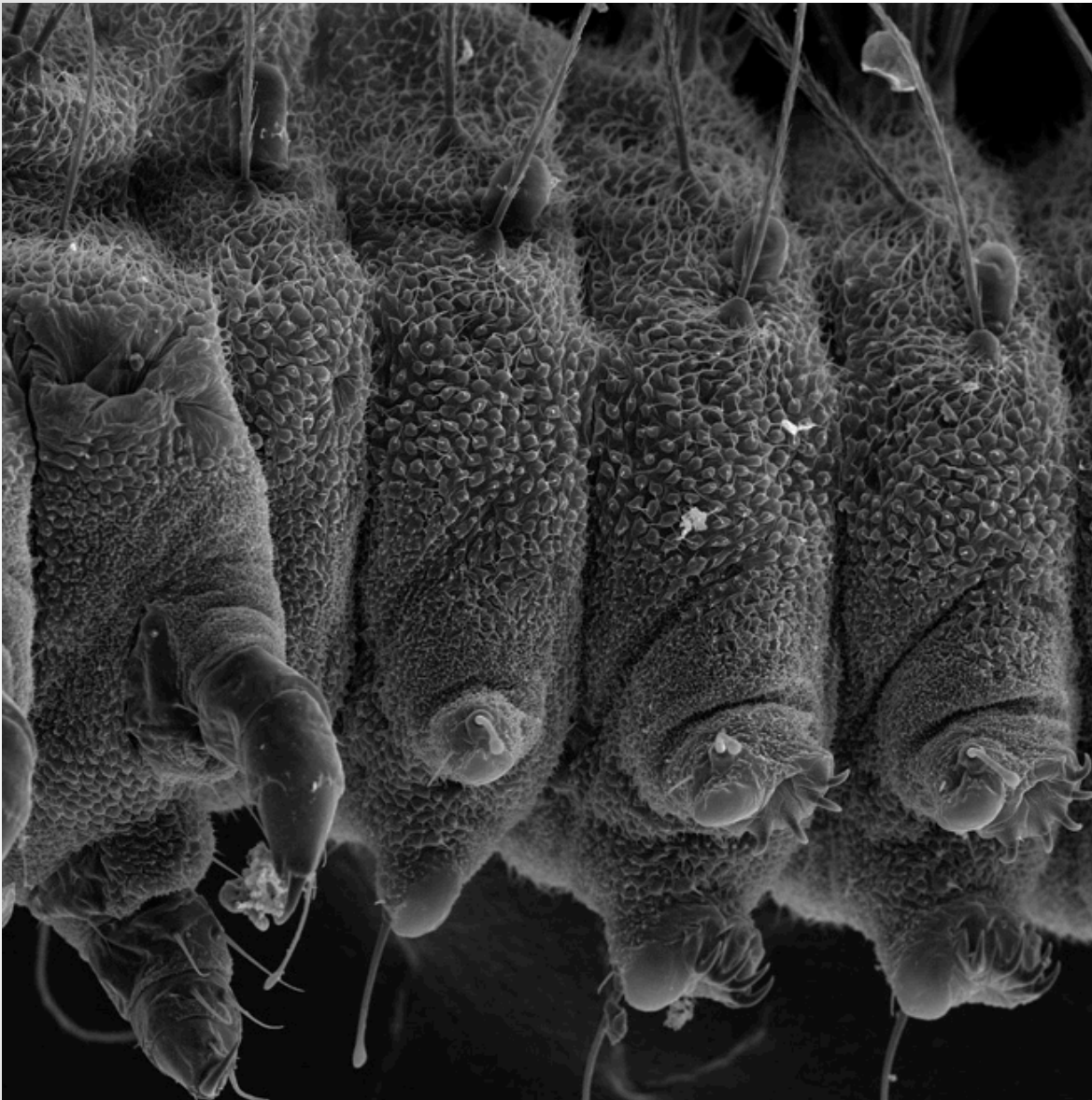


Renato Martins

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Norape tenera 1st instar

From Marc Epstein, 2017

increase in crochets in later instars



From Marc Epstein, 2017

Aididae

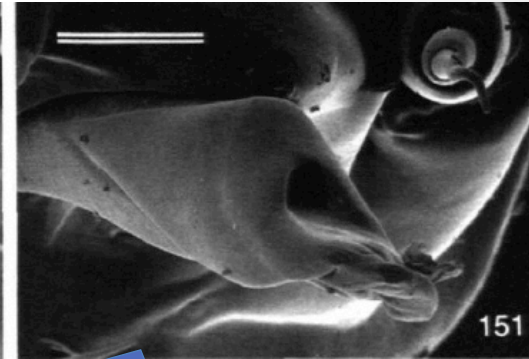
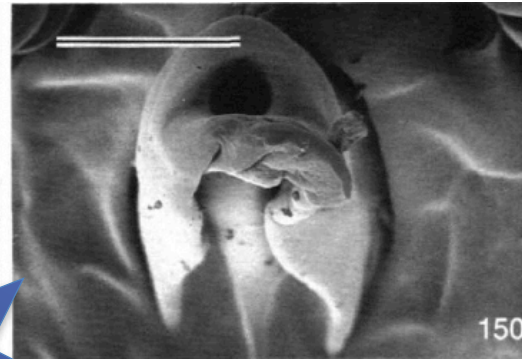
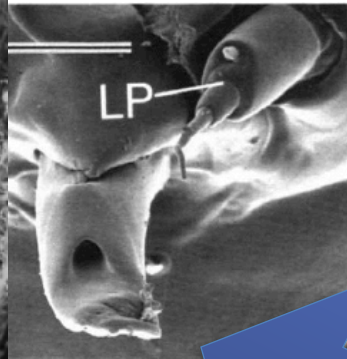
- Considered subfamily of Megalopygidae until recently
- Neotropical, 2 genera and 6 species
- Chaetosemata present, gnathos absent.



Epstein, 2017



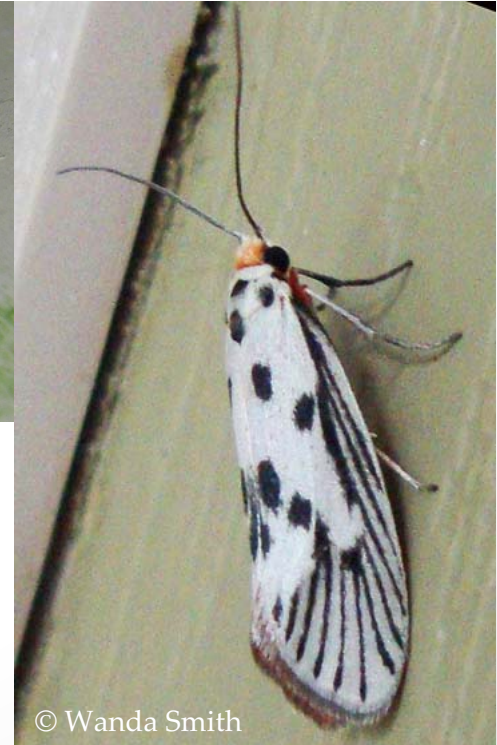
what appears to be a dauber on end of spinneret (Epstein, 1995)



From Marc Epstein, 2017

Lacturidae

- Tropical in distribution, a few species in the US
- Very resistant to cyanide
- Formerly placed in Yponomeutidae because of the resemblance of adults to other families (like *Atteva*), larval morphology clearly puts them in Zygaenoidea



Epipyropidae

- Ectoparasites and host-specific (?) on plant hoppers



Epipyropidae

- Maxillary palpi, proboscis, ocelli and chaetosemata all absent. Labial palpi very small or vestigial.
- Placement within the Zygaenoidea uncertain.
- Closely resemble male Psychidae
- About 40 species are known, greatest diversity in the Oriental region
- Only one? species in the US: *Fulgoraecia exigua*

Cyclotornidae

- Small family, restricted to Australia, 12 species
- Closely related to Epipyropidae, but parasitic larvae leave hosts (leaf hoppers or scale insects) to become predators of ant broods.
 - Use chemicals to coerce ants to carry larvae into nests



CSIRO

Himantopteridae

- Oriental & Afrotropical
- Possible larval association with termites
- Superficially resembling Neuroptera



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Anomoeotidae

- Oriental & Afrotropical
- About 40 described species
- Biology very poorly known
- Possibly no longer in the Zygaenoidea?



Somabrachyidae

- Palaearctic & Afrotropical



- “African Flannel Moths”

Heterogynidae

- Small family with only one genus and 10 species
- Endemic to the western Mediterranean
- Females wingless and resemble larvae in habitus and coloration



Acknowledgements

- **Marc Epstein, CDFA**
- **Lep Course attendees, Bruce & organizers!**
- **Southwestern Research Station**

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